Forecasting Energy Demand

BY ANDREW PICKFORD

To attendees of the UN Climate Change Conference in Madrid this month, the partial sale of national oil company Saudi Aramco may have gone largely unnoticed. Those disappointed in the failure of the climate summit to reach any meaningful agreement may not have realised how highly the world's lowest cost oil producer - which has consistently produced 10-million barrels of oil a day - was valued. The company's initial public offering raised a record USD$25.6-billion, making it the most valuable listed company in the world (USD$1.7-trillion).

To the casual observer, there appears to be an obsession in the Western press with an imminent date for peak oil demand, generally associated with extremely optimistic (early) forecasts. However, overlapping trends including the decline of multilateral agreements, increasing nationalist sentiments and expanding energy use in the developing world are out of step with this commentary.

There is no disputing the fact that at some point in the next century we will reach peak oil demand, after which oil demand will decrease. However, the reason is unlikely to be due to the most cited causes. Neither internationally binding mandates to limit the use of coal, oil and natural gas, an explosive growth in renewables, nor relentless expansion of the global electric vehicle fleet will be the likely drivers, despite their dominance in economic forecasts and projections.

It is partly for this reason that there is no consensus on the date of peak oil demand – estimates range from as early as 2030 to as late as 2100. Attempts to forecast the date of peak oil demand are educated guesswork at best, and anyone who predicts a date with certainly is revealing their own bias.

Just as the emergence of shale production caused a shock to oil markets, other fissures which upturn conventional wisdom will result in new forecasts. A symposium in Abu Dhabi in December 2019, spomsored by the International Association for Energy Economics, examined these issues, which alongside other discussions, considered the role of oil in the global economy through to 2100.

Several interesting insights arose out of the symposium and discussions on the sidelines of the event:

Hydrogen may become an important energy carrier, even though much of the political and policy debate will be related to its origin and the carbon intensity of its production. Hydrogen will likely be labelled "blue", "green" or "grey" as well as other colour variations.

Regardless of a peak oil event, Gulf producers enjoy such a low production price point that they will be likely in the oil business well into the century, even if production shifts towards petrochemicals. High-cost producers will exit the market.

The demand for oil will change through to 2050 in both its composition (towards petrochemicals and materials) and location (towards emerging economies).

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Financing of international oil companies (IOCs) due to "ESG" demands (dependent on varied environmental, social, and governance measurements) may provide a competitive advantage to national oil companies (NOCs) which have different capital, debt and financing options. This could diminish the role of NOCs and have geopolitical implications.

While natural gas is no longer seen as a "transition fuel" in Western countries and is being penalised by some decision makers, an expansion of renewables will necessitate additional natural gas generation capacity. Jurisdictions which do not have deep electricity interconnections or access to hydro-electricity capacity will be forced to curtail intermittent renewable expansion or add natural gas generation capacity.

- Nuclear power is making a quiet comeback and small modular reactors could disrupt the existing business model of large, expensive units. This is evident in the Middle-East and Gulf region where there is a demand for fast electricity, and a need for desalination.
- Several Gulf countries appear to be embracing renewable and nuclear power for economic rather than environmental reasons. The ability to free up oil and natural gas for export earnings more than offsets the capital and running costs for these electricity investments.
- There is an increasing disconnect between the energy priorities of first world energy consuming nations, with flat and soon declining demand; producer nations; and developing nations which are experiencing fast demand growth. This global fragmentation points to less international consensus on climate agreements and energy priorities. It represents the prioritising of individual national interests.
- Oil demand appears to have good short- to medium-term prospects. Even under scenarios of strong growth of electric vehicles, the transition in developing countries towards first world living standards will see ongoing upward pressure on oil demand, which will not be limited to transport fuel but will also include demand for petroleum-based products.

Prior to the emergence of shale oil, most energy conferences were focused on determining a peak oil supply date and predicting a hard end point to the oil age. Outlandish predictions included an expectation of a $200 per barrel super-spike in 2008. Now, however, few speak of a peak oil supply date as markets and new technologies have re-written the outlook. Similarly, in the 2030s, it will be an interesting exercise to read the headlines about oil from 2019, which may sound as outlandish as the dire predictions of the last decade.